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General Articles.

The Slaughtering of Animals for Human Food.

CLAIMS OF RIVAL METHODS.

By E. J. BURNDRED, M.C., M.R.C.V.S., D.V.H., Blackburn.

The usual methods of slaughter of food animals have for their object the draining of the carcase as completely as possible of its blood content.

Bleeding is carried out by opening the large cervical vessels, or the anterior thoracic vessels; its completeness being governed by the following conditions:—

(1) The health of the animal. In all affections where the vitality is lowered, bleeding is incomplete.
(2) Excited or tired animals usually do not bleed well.
(3) Animals which are "overstuck," or in which the heart is injured do not bleed completely.
(4) The method of stunning may have an effect, depending on whether the medulla is injured or not, this being the centre controlling respiratory, cardiac and muscular action.

It is not, of course, possible to remove all blood from the body, as a certain amount remains in the organs and musculature, whatever method is adopted.

The methods of slaughter in common use may be divided into three main groups.

(1) Simple bleeding, thoracic or cervical.
(2) Bleeding with mutilation of the medulla oblongata.
(3) Bleeding after previous stunning.

Simple bleeding.—This method is often employed for the smaller animals. It is also practised by the Jews and Mohammedans for the slaughter of all their food animals. In the case of the larger animals, they are cast on their backs with heads extended. The neck is then cut through to the spinal column by drawing a long sharp knife smartly across.

Bleeding with mutilation of the medulla oblongata.—Calves are sometimes "pithed" by having a sharp pointed knife thrust between the occiput and the first cervical vertebra.

Sheep are "pithed" after being stuck and having the head broken back, with the finger.

Cattle are sometimes "pithed" by a blow with a pole axe in the occipital region. Ostertag mentions this method as having been used almost exclusively in London for wild range steers imported from America.

Bleeding after previous stunning.—A blow with a *hammer*, *mallet* or *club* on some part of the skull covering the brain, is often used to produce insensibility. The *pole axe*, which consists of a long shafted hammer with a bolt head is the most used instrument for stunning cattle in England. The bolt is driven into the head by a strong blow aimed at the frontal bone immediately over the brain. After it is withdrawn, it is usual to introduce a "pithing cane," which destroys much of the brain, medulla, and spinal cord.

IMPROVEMENTS ON THE POLE AXE.

The Slaughter Mask was the first improvement on the pole axe, and has been extensively used in Germany. It consists of a leather mark covering the forehead and eyes. Lying over the portion of skull covering the brain is a metal plate containing a hole, into which a hollow ended bolt is placed. This bolt, when the mask is attached to the head of the animal, is struck with a mallet and enters the brain. It is usual to use the pithing cane afterwards. This appliance is used for cattle.

A similar appliance, in which the mask is metal and does not cover the eyes, is used for the stunning of pigs in Germany.

The *Kleinschmidt* spring bolt apparatus for small animals has a spring round the bolt, which is driven into the skull by means of a blow with a hammer, and is immediately withdrawn by the force of the spring. In this instrument the force of the blow is lessened by the compression of the spring.

A similar instrument for the stunning of pigs has been in use in Blackburn for some years, and was designed by Mr. W. H. Goodman, Meat Inspector.

The bolt is held in position by three lateral springs and the full force of the blow is taken by the bolt. In Germany, a swage, which is struck by a hammer, is sometimes used for the stunning of sheep.

The Shooting Mask suggested by Siegmund, was a modification of the striking mask, the striking bolt being replaced by a pistol barrel. In this instrument, a bullet was fired by tapping a firing pin at the head of the barrel with a light mallet.

Staehl's shooting apparatus was again a modification of this, the mask being deleted. Stoff's,

Greener's, and the Swedish killer are similar instruments, the two latter at least having attachments which prevent accidental firing. All the above are used for the large animals.

The R.S.P.C.A. Humane Killer for large animals consists of a short revolver barrel placed at right angles at the end of a wooden shaft. A wire runs down the shaft from the hammer to a slot at the end, where it can be pulled in order to fire the bullet. It is operated from the side of the animal.

The R.S.P.C.A. Slaughtering Pistol is a similar instrument, can be used with one hand, and is more portable.

The Greener Safeti Killer is also a bullet-firing instrument, and is designed for small animals. The barrel slides through a sleeve and is kept from contact with the firing pin by a spring. Contact between the striker and the cartridge can only be effected when the muzzle of the instrument is deliberately pressed against the animal's head.

The "Speary" Killer, also for small animals, has an adaptation of the old drop barrel action, aided by a spring. When it is intended to use the pistol it is gently pressed on the animal's head, the handle is slightly raised so as to bring it into line with the barrel; it is then in position for firing.

With the idea of eliminating any possible danger from the uncontrolled flight of a free bullet, and the penetration of the brain with explosive gases, a shooting bolt apparatus has been designed. It consists of a pistol in which the explosion of a cordite cartridge drives a solid steel pointed rod about three inches from the muzzle. The *Behr Pistol* of this type is in constant use, as is also the *Cash Pistol.* Mr. Cash informs me that an improved pattern will soon be on the market.

The methods of slaughter in general use in England at the present time are:—

Cattle are stunned with a hammer or pole axe before bleeding.

Calves are sometimes stunned by a blow before bleeding; in some cases they are "pithed."

Sheep are not stunned, but after "sticking," the neck is broken if possible, and the animal "pithed."

Pigs are sometimes stunned, either with pole axe, hammer, or some other instrument, but probably the greater number are bled without stunning.

There are, however, quite a number of places where various types of humane instruments are in use.

(Here follows a description of methods in use in foreign countries).

During the last 20 years there has been much agitation for reform in the methods of slaughter. In England, two "Slaughter of Animals" Bills have been introduced into the House of Commons, but both failed to get through.

In the Model Byelaws for Slaughterhouses (1915) issued by the Local Government Board, and also issued by the Ministry of Health in 1920, there is a clause providing for the effectual stunning by a humane killer of every animal previous to slaughter, and this has been adopted by about thirty Local Authorities.

Advantages and Disadvantages of the Different Methods.

The advantage sometimes claimed for bleeding without stunning is that the animal bleeds better; that the struggles help bleeding, as also do the anæmic spasms. As most people will agree, although Goltz's experiments seem to disprove it, there is no doubt whatever that this method is cruel. One has only to see a beast slaughtered by the Jewish method to realise this.

An animal properly "pithed," either with the knife or by a blow with the pole axe falls and remains motionless. Because of this, it has been considered a humane method, but it has been shown that although paralysed, the animals retain consciousness; although in some cases where the pole axe is used, concussion will produce temporary insensibility. This method must therefore be considered a cruel one. Furthermore, Ostertag points out that pithing and breaking the neck have the great disadvantage that bleeding is incomplete owing to the fact that the centres in the medulla, which regulate respiration, heart action, and muscular contraction, are injured or destroyed.

The pole axe, in the hands of the expert, is, generally speaking, a very effective instrument, but it cannot be claimed by even the most enthusiastic advocate of its use that the blow is invariably given in the correct place; in fact it is certainly almost impossible in the case of some bulls to produce insensibility with the first blow. It is because of the uncertainty of the force and direction of the blow that such instruments as the slaughter mask and the various striking bolts were introduced.

In all cases where a blow is used, it is of great importance that the animal's head should be fixed in such a way that full force can be given to the blow.

The captive bolt pistol has the advantage of the striking bolt, with the added advantage that the force is more certain, whatever the position. It, of course, requires a certain amount of attention.

The chief objection brought against humane instruments is that the animals do not bleed so well as by the old methods.

Goltz demonstrated by careful weighings that, in the large food animals, bleeding after stunning was not less complete than after cutting the throat without stunning.

In cattle, the following average quantities of blood were obtained: (*a*) in slaughtering according

to the Jewish method, 3.24 per cent. of the live weight; (*b*) in using the shooting mask, 3.20 per cent. of the live weight; (*c*) in using the striking mask, 2.89 per cent. of the live weight.

In calves: (*a*) in slaughtering according to the Jewish method, 4.90 per cent. of the live weight; (*b*) by the butchers, method of cutting the throat, 4.90 per cent.; (*c*) by a blow with a hammer, 5.07 per cent.

In sheep: (*a*) in slaughtering according to the Jewish method, 4.15 per cent.; (*b*) by cutting the throat, 4.31 per cent.; (*c*) by a blow with a hammer, 4.35 per cent.

Falk called attention to the fact that he found no difference with regard to the keeping qualities in meat preserved in cold storage, whether the animals had been killed by the Jewish method or by killing after a previous stunning.

Leighton, in 1913, carried out a series of experiments, taking particular care that all the animals and carcases were under the same conditions.

He concluded that "these exhaustive tests appear to me to establish quite conclusively that whatever objection there may be, if any, which may be brought against the use of these instruments (the humane killer and the captive bolt pistol) for the killing of cattle, that of the imperfection of bleeding which follows subsequent to their use, cannot be upheld for a moment."

Mr. Cash, of Coventry, has for many years undertaken to compensate butchers in that town in respect of any loss arising from the slaughter of several thousands of animals by the humane method, but no claim has ever been made.

As far as I can gather, no case has ever been cited of a carcase of an animal slaughtered with one of the humane instruments, being unsaleable, due to decomposition during a normal keeping period.

On the other hand, a report of experiments carried out at the Belfast Abattoir in 1920, states that the flesh of animals stunned by the pole axe kept better than the flesh of animals stunned by the R.S.P.C.A. killer. A report, however, from the Ulster S.P.C.A. states, "where according to the Markets Committee's report, both pieces (of meat) had become decomposed and malodorous three days after the trials, the remainder of these carcases was sold in the butchers' shops in perfect condition six days after the trials, and was cooked and consumed by the public up to thirteen days after."

It is known that injury to the medulla oblongata does interfere with the centres controlling the respiratory and cardiac action, and so may retard bleeding, but as the blow with the pole axe is almost invariably followed by mutilation of the brain and spinal cord with the pithing cane, the factors which may cause defective bleeding are quite as much present in this method as in shooting.

All firearms, whether guns or pistols, may be considered dangerous, and the shooting apparatus firing a free bullet is simply a modified pistol. Careless handling may endanger the lives of bystanders. There are on record cases of accidents occasioned by its use. Ostertag reports the case of a butcher's apprentice who was injured in an accident with a shooting mask of the old kind, and another accident which happened in the abattoir at Erfurt in the use of Staehl's shooting apparatus. The ball passed outward under the left ear of the animal and shattered the femur of the assistant who was standing by the head of the animal.

In the *Lancet* of March 26th, 1921, an accident is reported by the use of the R.S.P.C.A. killer. A pony was being shot with this instrument, and although death was instantaneous, a girl standing near received a portion of the bullet in her leg.

In the *Meat Trades Journal* of April 21st, 1921, two cases are reported from Portsmouth, in one of which the slaughterer received the bullet in his leg. In the other case the bullet flattened on the sheep's skull without entering the brain.

On the evidence available, it may be stated that the gun (R.S.P.C.A. killer, Greener, &c.) is a most humane and effective instrument for the stunning of the large food animals; that the charge that it impairs the keeping properties of the meat is not justified; but that there is a certain amount of danger from its use, especially in slaughterhouses built on the open hall system. For the stunning of the smaller animals, I do not consider that the use of a bullet firing instrument is called for, but that instruments of captive bolt type are available and efficient.

Apart from the actual method of slaughter a considerable amount of preventable suffering is caused by conditions incidental to slaughter. Housing in close proximity to the slaughterhouse; dragging of the beast with a rope covered with blood by a man in a similar condition; beating with sticks, twisting of tails, and in some places, electric goads to speed the unwilling victim, are all conditions which must cause some suffering to the animals.

Whatever regulations are in operation dealing with these matters, it is obvious that the slaughterhouse will always be the slaughterhouse; I should therefore like to see animals stunned before reaching the actual bleeding and dressing room, in special pens convenient to the lairages. They could then, after stunning, be shot down chutes to the dressing room, as in the American slaughterhouses.

With such pens also, the danger from misdirected bullets could be avoided to a greater extent. Similar pens could probably be arranged for both large and small animals.

I desire here to express my sincere thanks to our President, Major-General Sir L. J. Blenkinsop, K.C.B., D.S.O., for his kindness in obtaining, and giving me access to, reports from Officers R.A.V.C. on methods of slaughter in other countries; to Professor Sherrington; Dr. Daley, M.O.H., Black-

burn; Mr. E. Morgan, Venezuela; Mr. Paddison, R.S.P.C.A.; Mr. Cash, Coventry, and others for valuable information.

[Address delivered at the Veterinary Inspectors' Conference, held in connection with the Congress of the Royal Sanitary Institute, at Folkestone, June, 1921].

REFERENCES.—Handbook of Meat Inspection, *Ostertag.*
The Meat Industry and Meat Inspection, *Leighton and Douglas.*
Our Slaughterhouse System and the German Abattoir, *Cash and Heiss.*
Meat Hygiene, *Edelmann, Mohler, Eichhorn.*
Various pamphlets R.S.P.C.A.

Discussion.

Mr. JAMES R. HAYHURST said that they had listened to a very interesting paper, and he congratulated the author in dealing so ably with a subject that was so important and which had been so long delayed. Veterinary surgeons had neglected this important subject and therefore failed to give advice to local authorities as to the choice of instruments for all animals intended for human food. They had, therefore, left it to the R.S.P.C.A. and other societies to find an instrument which was safe, speedy, efficient, and caused no unnecessary pain, and which would kill in such a way as would ensure that the meat would have a good keeping quality. They must admit that the R.S.P.C.A had done a great deal in this matter and were continually improving their instruments, but in his judgment, veterinary surgeons should carefully study the subject. They would then be in a position to give a lead to others, for the time had come for them to go into the matter and make up their minds which was the best instrument, and if they had not got it suggest a certain type of instrument which could be invented.

So far as the larger animals were concerned, the pole axe was used in most slaughterhouses, and in the hands of an experienced man it was a most satisfactory instrument and could not be improved upon. The R.S.P.C.A. humane killer, which was used in some slaughterhouses, had, with one exception, all the advantages of the pole-axe, but he could never recommend that instrument to his committee because a live cartridge was used. There would be a great risk of killing or injuring human beings, especially in a busy slaughterhouse. The pole-axe was not satisfactory in the hands of a nervous or inexperienced man, and, as before stated, he could never recommend an instrument in which was used a live cartridge, so in his opinion they had to look elsewhere.

He agreed with Mr. Burndred that an improved captive bolt pistol was a type of instrument which should be used for all small animals, and an instrument on the same lines as the captive bolt pistol could surely be invented for larger animals. If instruments of this type were invented and which met the five requirements already mentioned, he felt that every local authority would use them, knowing that they had been invented on the recommendation of veterinary surgeons after careful consideration.

Colonel LEIGHTON said in 73 public abattoirs in Scotland, a humane instrument of one form or another was used, and the Board of Health had recommended the use of them. As an inspector of slaughterhouses, he found that there was a great deal of unnecessary cruelty in their methods of to-day, but he did not think that the greatest part of that cruelty took place during the actual process of killing, but was far more associated with what happened to the animals on the way to the slaughterhouses. He strongly believed that every animal that was to be killed should be first stunned. (Hear, hear). He did not see any reason against it, and common humanity required that to be done.

If shooting instruments were to be used on a larger scale, and he believed one form or another would be used in future, the use of those instruments in large abattoirs should be restricted to one or two persons who were authorised for the job in that slaughterhouse.

At the slaughterhouse in Gottenburg, one of the finest establishments on the Continent, an instrument was used and two men carried out all the killing in that slaughterhouse, and some 250 animals were killed daily. No one was allowed to shoot the animals except two licensed slaughtermen. He did not think every Tom, Dick and Harry should be allowed to use a shooting instrument. If the use of the pole-axe was to be continued he would like to see it used only by men who had been trained on a dummy beforehand, and who held a licence from the authorities to use it. (Hear, hear).

Mr. Deputy NEAL asked if it would not be best to adjourn the matter for a year, and meanwhile he hoped that the R.S.P.C.A. and the other societies interested in the matter would direct their attention to finding a really suitable and reliable instrument. With the shooting instrument now produced there was a great danger of the bullets flying about. He would move that the meeting, having heard the paper, the consideration of the matter be adjourned for twelve months and then the Conference could reconsider it, and they hoped in the meantime something would be found that was more practicable than the proposals now submitted.

Professor HOBDAY said he would not like to see the matter postponed. Every effort was at the present time being made to find an ideal instrument. One of the main points that was holding it back was the question as to the effect of the method of killing on the preservation of the meat for a few extra days, more or less. There was no contrast of opinion upon the desire for humane killing, but the contrast of opinion was upon the question of the stated variations which followed the various methods of destruction in their effect upon the preservation of the meat or otherwise afterwards. He suggested that a resolution should be passed that authorities be made to provide humane and

effective instruments for the slaughter of all animals for food. The speaker stated that he had considerable experience, as he was connected with the Councils of several of the animal humane societies, and it would help them very much if an influential meeting like this passed such a resolution.

The Council of Justice to Animals recently offered £100 for the best instrument invented. A captive bolt pistol, worked by compressed air was produced and was awarded the £100. It certainly stunned the animal when used properly, but after use it naturally wanted cleaning or it would get out of order. This particular instrument, too, was somewhat clumsy to use. In conclusion, Professor Hobday said that in his opinion no slaughterman should be allowed to kill animals until he had passed an examination, showing that he was an expert in hitting a mark with whatever was the killing instrument selected, of putting a certain amount of force behind his blows, where this was necessary, and by a sufficiency of anatomical knowledge of the head or other part of the animal upon which he was operating. The dead animal would supply material for demonstrating the latter, and as regards the accuracy and force of the blow, there were already on the market models of machines upon which the necessary practice could be made. There was no necessity at all for the preliminary tuition and practice to be made upon the living animal, as was done at the present time. It must, of necessity, involve a good deal of cruelty which was quite avoidable if the youth who was learning to become a slaughterman did his practice (and become expert) on inanimate objects first.

Mr. PADDISON said that a humane killer should accomplish three objects. It should give animals a painless death, it should act without detriment to the butcher's interests, and it should be free from danger to slaughtermen when used with moderate care.

The societies and persons who had been working to produce a satisfactory humane killer had kept these three points constantly in view for many years past. He was glad to know that the speakers who had preceeded him were satisfied that humane killers were effective and not detrimental to the meat, but he was sorry to find that they regarded all humane killers as dangerous, and he could only suppose that such an idea was due to misconception, as results had shown that up-to-date humane killers were at least as free from danger as implements habitually used.

It would seem that accidents with old-fashioned instruments were the cause of this impression getting abroad, and such condemnation was unfair, as up-to-date humane killers were provided with effective safety devices which were absent from the old ones. The speaker pointed out the advantages of the Swedish killer and the Greener's "Saftie" pistol. The R.S.P.C.A. killer had a remarkable immunity from accidents, when it was remembered that 5,000 of these instruments had been sold and were chiefly employed in the felling of beasts.

One heard a good deal about glancing bullets, but the speaker has never heard of an accident from this cause, where the instruments referred to were used. Mr. Paddison did not suggest that finality in this direction of safety had been reached, and stated that continual efforts were being made in this connection, but he thought that humane killers as they are to-day fired, with the cartridges now in use, were perfectly safe unless there was gross carelessness.

Mr. Brown, the Surveyor at Weston-super-Mare, had recently informed him that 60,000 to 70,000 animals had been shot at the abattoir there without accident or complaint, and he was assured by the two meat inspectors that "the statement that there is danger in the use of the implements is quite without foundation."

Mr. Paddison concluded by saying that he hoped members of the association and others would co-operate with the societies and others in working towards even greater security from accidents, and he deprecated any attitude which might have the effect of discouraging the use of humane killers, and at the same time thereby retard still further improvements.

Professor WOOLDRIDGE said he thought they were all agreed that the first step in slaughtering should be stunning. In the second place he thought one must assume that any method of stunning must be effective, must be fool-proof, and must not interfere with the value of the carcase. No instrument that involved the use of a bullet could be regarded as safe in a slaughterhouse. In his opinion any method involving the use of a bullet was ruled out. The line on which the development should take place was on the line of a captive bolt pistol. The present ones were only effective in a few instances on the larger animals. They could stun one or two animals and then the chamber would be choked with fumes and it was not so effective. He thought an expression of opinion should go from the Congress as to the most hopeful lines of development in the effort to produce an instrument which combined safety and effectiveness.

RESOLUTION.

It was proposed by Professor Hobday, London, and seconded by Mr. Deputy Neal, Corporation of London :—

> That renewed efforts be made to provide humane, safe and effective instruments for the slaughter of all classes of animals used for human food, and that the matter be brought up again at the next year's Conference.

Carried unanimously.

Lamb Mortality.

Activities of a Complacent Ministry.

In the House of Commons recently, Major Brown asked the Minister of Agriculture if he was taking any steps to investigate the causes of diseases which had been so fatal to lambs this year; and if the mortality this year was greatly in excess of previous years.

Sir A. Boscawen: The Ministry is carrying out a careful investigation into the causes of the diseases in question, and for purposes of observation, a member of the Ministry's veterinary staff has been stationed in the past two years during the lambing season in a specially-affected district. Although in certain districts there appears to have been a heavy mortality this year, there is no reason to believe that the mortality among lambs has been generally greater during the past season than in previous years.

Readers, from their experience of previous seasons as compared with the conditions which have prevailed in their own localities during the present year, will be in a good position to appreciate the value of this very typical ministerial pronouncement—the solemn assurance that measures of exceptional thoroughness are being taken to deal with a position that, after all you know, presents no unusual features.

Conference in Northumberland.

Sir Stewart Stockman, of the Ministry of Agriculture, recently attended a conference of flock-owners and representatives of administrative bodies at Newcastle, to discuss the question of sheep diseases in Northumberland.

The conference, which was arranged by Professor Douglas A. Gilchrist, Armstrong College, was attended, amongst others, by Lord Grey, Howick; Sir Francis Walker, Bart., and Ald. C. H. Sample, chairman of the Diseases of Animals Committee, Northumberland County Council.

Alderman Sample, who presided, drew Sir Stewart Stockman's attention to the serious sheep scourge that had taken place last spring throughout Northumberland, involving the death of thousands of lambs through a mysterious disease.

Sir Stewart explained how far the investigations had gone, and ascertained from sheep-owners their opinions concerning the disease, the nature of the outbreak, how it affected the lambs, and also what means had been tried towards effecting a remedy.

It was stated that in such a dry season the pastures on affected farms might have been burned out, in order to stamp out any germs that may be lodging in the grass. Drastic diseases demanded drastic measures to secure a remedy.

He was prepared at the end of next March, just before lambing began, to conduct investigations and experiments on some of the affected farms in Northumberland. He hoped to secure a movable van, in which the experimental apparatus could be placed, and thus he could carry out his experiments on different farms.

It was agreed to appoint a committee to meet the Diseases of Animals Sub-Committee of the County Council on the matter.

Sir Stewart also alluded to other sheep diseases, such as scrapie and louping-ill, and spoke of the progress of the investigations in connection therewith.

Professor Gilchrist said that Sir Stewart had a number of excellent cinema slides describing the history of the scrapie disease, and a lecture might be arranged later. Meantime Sir Stewart was anxious to obtain all available information concerning sheep diseases generally, and flock-owners were requested to communicate with him on the matter.

Bacillary Dysentery in Lambs.

Professor S. H. Gaiger, F.R.C.V.S., and Mr. Thomas Dalling, M.R.C.V.S., of Glasgow Veterinary College have contributed a joint article on "Bacillary Dysentery in Lambs" to the *Journal of Comparative Pathology and Therapeutics*. The article has an introductory note on the appalling death-rate amongst young stock on the farm—foals, calves, lambs, chickens, etc.—of which veterinarians become aware every year in springtime.

This toll of life, they state, would appear to merit the expenditure of a vast amount of energy and money in elucidating the conditions with a view to their prevention. The writers have in mind more particularly bacterial infections which result in the deaths of such stock from within a few hours to a few days after birth. The correspondence files of the research laboratory at the College reveal the existence of annual losses hardly dreamt of by the general public and only partially realised by the generality of stock-owners, though fully appreciated by stock-owners when such terrible losses come upon them that they are compelled, as they are in quite a number of cases, to give up breeding that particular species of animal altogether. It is not suggested, of course, that these infections are bacteriologically identical, because we know that they are not, but they have this in common that they are all so very rapid in their onset after birth, so much so as to suggest at once antenatal infection; so acute in their course and so invariably fatal in their termination that curative measures are out of the question. Hopes of remedial measures against these outbreaks must therefore lie with preventive methods, but before these can be devised there must necessarily be carried out extensive pathological, bacteriological and epidemiological investigations. The very nature of these outbreaks necessitates a large amount of this investigation work being done on the spot where the diseases exist. Under the title "Dysentery in Lambs," a preliminary account of the disease under review was published in the *Journal of the Scottish Board of Agriculture* for

April, 1920. The 1920 outbreak suggested that when the disease first appears on a farm it is mostly lambs under ten days old which die from it. After the disease has appeared for a few seasons, lambs up to two weeks old become affected. The disease is more prevalent towards the end of the lambing season, probably because the last ewes to lamb are brought in to paddocks round the farm and kept together there in order to simplify matters for the shepherds. It has happened that every lamb died after this "shedding-in" process began. The study of the disease in 1921 showed that it occurs in Argyllshire, Berwickshire, Kirkcudbrightshire, Perthshire, and Wigtownshire in Scotland, and in Northumberland, Durham, Cumberland, and Lancashire in England, and possibly in other counties in both countries. The breed of lamb amongst which the investigators have worked has been either pure-bred blackface or cross-bred out of blackface ewes by Border Leicester tups. Cross-bred lambs are not nearly so susceptible to infection with dysentery as pure-bred, and a fair percentage of the former recover. Perhaps the earlier lambing of the cross-breds and the bigger nature of the lamb may have something to do with this. Opinion is very much divided amongst shepherds as to whether the type of ewe has any influence on the susceptibility of the lamb or not. The investigators' view is that no distinction can probably be made. But the vast majority of ewes which lose their lambs one year lose them again the next year. The lamb which does best is the one which is not too strong when born, but which can suck alone and unassisted and does not gorge itself with milk.

The conclusions arrived at are as follows:—Lamb dysentery is already a serious menace to sheep-raising. The disease is annually spreading farther north in Scotland and farther south in England, and only shows signs of abating where it has been in existence upon a farm for seven or eight years. The disease takes a heavy toll of life (30 per cent.) amongst lambs, mainly during the first two weeks of life. Lambs over 15 or 18 days old are immune. The disease only appears each year with the lambs of susceptible age, and disappears when these are all dead or have grown beyond the susceptible age. The disease is caused by a bacillus of the coli type which invades the body from the inflamed bowel. The lesions are inflammation and necrotic ulceration of the intestines. All the evidence goes to show that the ewe acts as a carrier of the bacillus, and is responsible for carrying infection from season to season on the same land and also to other farms. A preventive serum was made and used on the lambs on the day of birth, but, while it undoubtedly immunised them, it did not give in all cases long enough protection to tide lambs over the susceptible age. Further tests with preventives will be made with the object of immunising the lambs to carry them over the susceptible period of life. These will include the inoculation of pregnant ewes and of the new-born lambs. Much might be done to minimise losses by the precautions recommended for infected farms and by altering some of the present customs followed during lambing time.

Tuberculosis and the Thoroughbred.

Dr. H. S. Sutherland, of the Ministry of Pensions, called attention to the prevalence of tuberculosis amongst racehorses, at the International Conference on Tuberculosis, by a reference to this year's Derby winner.

It will be recalled that only a week or two after his victory, Humorist was found dead in his stable, having fallen a victim to a serious hæmorrhage. Followers of the turf can hardly fail to note that many racers die from the same trouble, and Dr. Sutherland offers, says the *Edinburgh Evening Dispatch*, what appears to be a very likely explanation. Tuberculosis is a disease which must be countered, above all things, by fresh air, and these pedigree horses, "bred in the purple," as sporting men phrase it, are so coddled and petted and shielded from the weather that they have little chance of becoming hardy. They are mostly delicate creatures. To preserve them from colds, elaborate arrangements are made in most stables to keep out draughts, and it is done so effectively that ventilation becomes deficient. Thoroughbreds, therefore, fall easy victims to tuberculosis.

A Progressive County.

The Agricultural Education Committee of the Cheshire County Council are taking steps to eliminate tuberculosis from the county herds. The Council acquired some time ago the Reaseheath Estate and Henhall Hall farms, and both are being adapted for research work. The general idea of the scheme is to test all cattle in the Henhall and Reaseheath herds, to segregate all non-reacting cattle on the latter farm and all reactors at Henhall. Thereafter, the Reaseheath herd will be kept virtually free of the disease, and no cows brought on to the farm until they have been tested.

Brought in cattle will be quarantined for a period and tested before being allowed to mix with the remainder of the herd. The replenishment of the herds, says the county agricultural organiser, presents the biggest problem financially. It is known that the proportion of tuberculous animals in local and north country herds is very high. So far as present knowledge goes, the healthiest cows are reared in Ireland, especially in the western parts of that country. Heifers bred and reared on farms should form the chief means of keeping up the herds.

Mr. Joseph Little, Townhead, one of the best known veterinary surgeons in the fell district of Cumberland and Westmorland, has died at the age of seventy-nine.

The Veterinary Record.
13th August, 1921.

THE SLAUGHTER CONTROVERSY.

In this column we dealt last week with the tuberculosis problem from the standpoint of its presentment of a unique opportunity for the furtherance of the much-desired object of bringing the profession into greater prominence in the public eye.

Another question which, upon similar grounds, amongst many others, should commend itself to our earnest consideration is that of appraising or discrediting (eventually making a selection of one for the stamp of our professional approval) the various methods now in vogue for the slaughtering of animals for human food.

Here again is a matter upon which the experience and knowledge of the veterinary surgeon places him in a position of advantage as compared with that of others engaged upon the investigation of the rather surprisingly intricate considerations involved. He should be prepared to utilise this, not only from the point of view of professional advantage, but for the sake of those animals of whose welfare he is admittedly the chief guardian—he, for instance, would not be likely to overlook the fact that the sensibility of the lower creation in regard to terrifying apprehension is scarcely less acute than our own.

The whole country, as a meat-eating community, is interested in this question of killing, now that it has achieved a noteworthy prominence through Press advocacy of the methods approved by the Humane Killer Movement.

The public not unnaturally, but with a unanimity that is in the present instance something of an undeserved tribute, looks to the profession for some authoritative light upon the matter, which we are not at once ready, as we should be, to throw, because this infinitely ancient practice of slaughter has not received the attention it deserves.

That is at once evident from the comprehensive description of the various methods in use, and their able comparison, which we present in this issue, in Mr. Burndred's Folkestone address. Even those most experienced in this matter seem unable authoritatively to make up their minds, despite the desirability of their giving an immediate lead, as urged by Professor Hobday.

It is true that this question presents somewhat unexpected complications, in addition to those which lie immediately beyond the ken of the general public, whose heart-strings are as readily touched in this matter as are the purse-strings of the butcher.

Evidently the man in the street thinks anything better than the pole-axe; to us the desired struggles of the stuck animal facilitate a more repulsive process, yet one which satisfies the tender (?) conscience of the Jew and brings joy to the heart of the butcher, ensuring, as he avers, more complete bleeding and longer-keeping meat; the Islington inspector emphasises the important complication that he cannot recommend to his Committee any form of bulleted firearm in his open-halled slaughter-house.

Quite obviously such a suggestion, seriously put forward by a responsible official in one of the kingdom's biggest killing centres, cannot, as we have seen it attempted, be lightly dismissed; we are not sure that it can be regarded as other than the primary consideration. Accidents, it seems, have occurred, and even the confining of the use of the weapon to a few selected licensed men scarcely commends the method if an absolutely safe way can be adopted.

The pole-axe is, of course, safe enough, but one has only to witness the agonised attempts of the doomed animal to resist the process of steadying the head in preparation for the blow to realise what an undesirable summation of apprehensive preliminaries this constitutes.

The most commendable solution to a necessarily unpleasant business appears to us to be that of Mr. Burndred's own recommendation—the employment of some such weapon as the bolt pistol, which stuns with efficiency and retains the agent. And, as Mr. Hayhurst suggests, an instrument on the same lines should be invented for the larger animals. Primitive sticking, with its subsequent conscious hæmorrhage, is an abomination unworthy of either the science or morality of the twentieth century, and, from professionally constituted animal guardians, that is a long overdue statement.

We are, in conclusion, in entire agreement with the proposals made to postpone the assumption that the animal is a non-sentient mass of butchers' meat until the last possible moment.

ANNUAL GENERAL MEETING, 1921.

The Annual General Meeting was held at Chester, on July 26th-29th, and it was generally agreed to be one of the most successful gatherings held under the auspices of the National.

Probably in no previous meeting of a similar character has such keenness been displayed by the members, and such evidence of the appreciation of the work of the organisers is ample reward for the labour which such a meeting entails. It is, moreover, a healthy sign of an awakening enthusiasm, and, of course, augurs well for the future of the Association.

With an average attendance of more than 70 members at each section of the Conference, there was an animated and well-sustained discussion on each of the papers.

It is, unfortunately, impossible to reproduce in cold print any semblance of the enthusiasm which pervaded the meetings—an enthusiasm which was due no doubt to an appreciation of the very great value and interest of the papers which were contributed, and of the discussions which resulted therefrom. It is to be hoped, however, that once the educational value of these gatherings is realised, a greater attendance at the annual meetings will result.

In addition, resolutions were passed which, if given effect to, will have far-reaching results, and which, in any case, will redound to the credit of the veterinary profession, inasmuch as they so greatly evidenced the foresight and progress in regard to public health.

It is intended to devote a specially enlarged number of the "Veterinary Record" to proceedings of the Annual Meeting at an early date.

Abstracts and Reviews.

Tuberculosis of Equines and its importance in Tuberculosis Eradication by the Accredited Herd Plan.

Tuberculosis of equines is generally considered of little economic importance. Statistics, especially those compiled in countries where horses are slaughtered for food purposes, show but a very small percentage affected. The majority of veterinarians have practiced for years without seeing a case of equine tuberculosis. Of the thousands of horses which are destroyed and autopsied annually by Federal and State authorities, as well as those dying in hospitals where post-mortem examination is a routine, there are but relatively few cases of tuberculosis reported. It is true that all cases would not necessarily be reported in our journals, but when one converses with those who have been afforded the best opportunity for observing autopsies on large numbers of equines he is more impressed with the scarcity of the disease and is led to look upon it as of no economic importance either as regards animal industry or public health.

With these facts plainly before us it would be like making a mountain out of an ant-hill to say that equine tuberculosis is of any great economic importance, but what can be said is that horses exposed to tuberculous bovines may be a greater menace to livestock and public health than they have hitherto been regarded.

For convenience we can divide horses into two classes, viz.: unexposed and exposed. The first class includes those kept in city stables, in separate barns on farms, or so they are not directly exposed to tuberculous bovines. It is chiefly from this class that our present data have been gathered. The second class includes all horses directly exposed to infection, such as those kept in contact with tuberculous cattle or in the same barn with little or no segregation. It is to this second class, or, better, the exposed horse, to which our attention should be drawn. This is by far the smaller group of the two, but of the greater importance as regards tuberculosis.

The greater the progress in tuberculosis eradication the more important this question becomes. The larger and better herds have been the first to come under the accredited herd plan, but as time goes on and the work expands, more and more herds on small, poorly managed farms will be included. The number of exposed horses will then increase, as it is more common to have both species in close contact on the small farms.

Since 1913, but one case with no history of exposure has come to our notice. This was an aged animal kept for years in a large city stable and which was destroyed on account of a suspicious reaction to ophthalmic mallein. The writer autopsied this case and found a calcified lesion in the mediastinal lymph gland. No lesions of glanders were found. A bacteriological examination revealed tubercle bacilli of the bovine type.

During the last two years four cases of tuberculosis in horses have been brought to our attention, all of which were exposed animals. The following is a brief summary of these cases:

Case No. 1.—April 4th, 1919, Dr. L. A. Pratt, Rome, Pennsylvania, submitted sections of lungs and spleen to the laboratory with a request that they be examined for tuberculosis. The lesions proved to be tuberculous and the organism of the bovine type. This animal had been exposed to bovines which had never been tested and which there is reason to believe were infected. This case has been reported in more detail by one of my

colleagues, Dr. M. F. Barnes, in this journal, September, 1919.

Case No. 2.—January 27th, 1920, Dr. Pratt submitted sections of lungs and spleen which showed extensive lesions of tuberculosis from the team mate of the foregoing case. The lesions in both of these cases showed a striking similarity. Smears in both cases showed acid-fast organisms in great numbers and the type of organism in both was the same.

Case No. 3—Specimens of mesenteric lymph glands and intestines of a horse were submitted by Dr. A. Berg, Doylestown, Pennsylvania. The glands were greatly enlarged and caseated. The intestines revealed tuberculous ulcers from the size of a dime to that of a dollar. The type of bacilli proved to be bovine. This case was investigated and the following history obtained.

The owner purchased it from a dealer about eight years ago. Last spring it began to lose flesh and did not seem well. During the summer it failed to pick up and in the fall it began to lose more flesh. During this time attention had been given its teeth, and tonics administered. From the 9th of November its appetite varied. Fever developed, 101 to 103. Antipyretics were given, but the fever remained about 102. There was frequent urination. A rectal examination was made and a tumor was located in the sublumbar region which was diagnosed as a melanotic sarcoma. The owner was advised to slaughter the animal, and an autopsy revealed a tumor weighing 25 pounds. The mesenteric lymph glands in the posterior portion of the intestinal tract were enlarged, some to the size of an egg. The cæcum and the colon showed many ulcers with ragged edges, from the size of a dime to that of a dollar. Other organs were apparently normal.

The barn where this animal was kept was poorly lighted and ventilated and adjacent to the cow barn, both under the same roof. In the stable there were ten cows which were in fair condition, but had never been tested. All animals drank from the same watering trough.

Case No. 4.—A case of tuberculosis in a mare was reported by Dr. A. B. Potteiger, of Selinsgrove, Pennsylvania. This animal was on premises where a tuberculin test was to be applied under the officially accredited plan. On December 15th and 16th the test was applied to the cattle, and at the same time the horse was tested, with the result that a positive reaction was obtained. Eleven of the fifteen cattle reacted. The owner also had a herd of cattle destroyed about five years before which was tuberculous. This mare was in close contact and pastured with the first herd as well as the second. On account of the presence of scars on the nasal septum it was thought advisable to eliminate glanders, so a blood sample was submitted to the laboratory, and this gave a negative reaction to the complement-fixation test for this disease.

This mare was purchased by the Bureau and shipped to the laboratory for further study. On December 1st, the intrapalpebra mallein test was applied, with no reaction. On December 6th and 7th the subcutaneous tuberculin test was applied and a very suspicious reaction obtained. At the same time the ophthalmic tuberculin test was applied and gave a well-marked reaction. The intradermal test was applied simultaneously with the subcutaneous and ophthalmic tests. Three minims of tuberculin was injected in the left lip of the vulva. The reaction obtained was highly suspicious.

On December 9th the submaxillary lymph gland, which was greatly enlarged, was harpooned to obtain material for microscopic examination. The material thus obtained from the centre of the gland revealed acid-fast bacilli, characteristic of the tubercle bacilli.

December 15th and 16th, a subcutaneous retest was applied, the dose of tuberculin being 12 c.c. A positive reaction was obtained. Aside from the high temperatures there was a well-marked local reaction at the point of injection. This injection also caused a return of the ophthalmic reaction.

Several physical examinations were made of this animal while under our observation. There were three scars on the left nasal septum which were somewhat suspicious of glanders. The submaxillary gland was about the size of a large hen egg, hard, not lobulated or tender to touch. Two small enlargements were present in the region of the thyroid glands. No other abnormal conditions were found.

On December 17th, 1920, this animal was destroyed, and on autopsy the submaxillary, retropharyngeal and all the cervical lymph glands on the left side were found affected. The glands on the right side of head and neck were apparently normal. Lesions were found in the anterior mediastinal, mesentric and splenic lymph glands and two nodules in the spleen. All the small lymph nodes in the cervical region were greatly enlarged. The affected glands were greatly enlarged and very fibrous, and on section showed innumerable small areas of calcification.

A bacteriological examination revealed acid-fast organisms which readily killed both guinea-pigs and rabbits with generalized tuberculosis, indicating the origin of infection as bovine.

Discussion.

Of the four cases cited above it is to be noted that at least three are to be classed as spreaders, and the fourth if not a spreader was certainly dangerously near to that condition.

To eradicate tuberculosis from herds continually exposed to such animals would come near to being an impossibility. When we stop to think that these cases were all discovered as a result of their physical condition, we wonder how many cases

would be found if special attention were given to this subject and all exposed horses tested with tuberculin. I do not mean by this to recommend such a procedure, but rather to impress the reader with the fact that horses exposed to tuberculous cattle may contract the disease and become dangerous spreaders. Therefore, where conditions point to this possibility, exposed horses should be subjected to the tuberculin test.

[F. BOERNER, JR., *Journal American Veterinary Medical Association*, May, 1921.]

Combination Tuberculin Tests.

The world has advanced greatly in the past few years. Not only have there been many valuable inventions and much progress made along industrial lines, but this is true also of science, and it is gratifying to know that veterinary science has advanced and kept pace with the great inventions that have proven so successful. There have been discovered serums and vaccines that have proven invaluable to the veterinarian in eliminating the fatal diseases which exist in livestock.

Tuberculosis eradication to-day is one of the great problems that confronts all of us, and it is work that will go down in history as one of the greatest undertakings that the veterinarians have ever accomplished. We should be proud that science has given us other methods of diagnosing tuberculosis besides the subcutaneous test. While this has proven successful in the past and was our best known method of detecting tuberculosis in cattle, we have to-day check tests that are so valuable, as experience has proven to me, that I would not be satisfied with any one test in a herd that had previously been tested or where disease had prevailed for a number of years. I think all three tests should be applied, and when this has been carefully done I feel confident that we can go away from that herd and feel that our decision is 100 per cent. perfect.

The intradermal and ophthalmic tests I believe should be applied with the greatest skill and care, for the least mistake will mislead one's judgment. It is very easy in applying the ophthalmic disks in a herd of 40 animals to lose one out, and unless check tests are applied one would be apt to leave a tuberculous animal in the herd to spread the disease to healthy cattle; but when the intradermal test is applied at the same time as the ophthalmic, the danger is lessened to such a degree that it is almost impossible for a diseased animal to get by.

The ophthalmic sensitising disk should be applied when the herd is first inspected. Care should be taken to have the finger nails short and the hands clean. A light touch should be used. The disk should be put in the upper right-hand corner of the eye and the hand held carefully over it from three to five minutes at least, as some disks are hard to dissolve. The second disk can be applied from the fifteenth to the seventy-second hour, and observations should begin from the second to the sixth hour. I have known the purulent exudate to last up to the fifteenth and eighteenth hours, but the best observations will be obtained at the sixth hour.

The intradermal injection can be applied right after the first tablet is put into the eye, then the second tablet can be applied after the forty-eighth or seventy-second hour observation has been made. I find one will get best reactions at the seventy-second hour. Sometimes at the forty-eighth hour a known reactor will show a slight swelling, but it will always persist at the seventy-second hour, and lots of times later, but not so pronounced at the one hundred and fiftieth hour as at the seventy-second.

Great care should be used when making the intradermal inspection. Have one standard place of injection. Have the animal well restrained, as one injection is sufficient. Always take notice that there is not a false swelling at the point of injection which might mislead one when taking observations. Sometimes I find that the tail has been twisted and a marked infiltration left, or perhaps a wound from a pitchfork, which sometimes leaves a small swelling, or the animal has suddenly been backed up against a post and a swelling left that might hamper the decision. But with a true reactor there will be a swelling with almost always an infiltration. The size will vary from a small pea to a quarter in diameter.

[EASTMAN, D. K., *Journal Amer. Vet. Med. Association*, 1921, June, pp. 338-340.]

The Rights of Service.

A system of propagating ideas much in vogue in ancient classical circles has been revived in America, especially in connection with religious controversies. It is that of a question-and-answer presentation of material, and its effectiveness may be gauged by its adoption by the Blue Cross Society of America in what certainly merits inclusion amongst the ethical campaigns. For there is certainly that element of justice that appeals to English-speaking peoples as the soundest ethical basis of belief in the Society's Declaration of Animal Rights: "Animals forced into service by civilisation have the right to its full protection by statutory law."

It is mainly in support of this challenge to an all too complacent community that the Society have published an appeal in the form of a handbook of scientifically based animal lore that reads, despite its inevitably somewhat disjointed nature, quite fascinatingly to the animal student, and cannot fail to hold the attention of the casual reader.

"Animalology" is far from being a commonplace catechism concerning the care of animals. It is an astonishingly comprehensive compilation and serves an informative purpose that, in its

turn, helps "to create an interest in animals, in their service and rights in the universe, and to foster public sentiment for legislation on their behalf."

The result of this junction of the scientific with the humane is a wider ground of appeal, and a consequent greater likelihood of success. Through the agency of this Society a knowledge of indebtedness to animals is being spread that should do much to transform tolerant (or even intolerant) indifference to grateful solicitude for their welfare.

This little book is written for those best able to help—those cognisant of the romance of biology, of the correlation of the human and sub-human, of the possibilities of moral and scientific progress consequent upon an adequate appreciation amongst the well-educated of the place of the lower creation in the scheme of life.

[*Animalology*, by Miss Maud Phillips, Blue Cross Society, 310 State Street, Springfield, Massachusetts. Price one dollar].

Clinical and Case Reports.

Fœtal Dystokia.

By J. H. Parker, M.R.C.V.S. (Faringdon).

Case 1.—*Subject*, mare.

Called out one Sunday morning in March at 3 a.m. Found mare lying on her right side and foal partly delivered—as far as chest. Thinking it was a simple case did not trouble to "strip." Attached pulleys to head and another set to fore legs; applied traction without result. Foal refused to come, and we dragged the mare along the ground. I next eviscerated the foal, but that did not do any good. I tried to find out by examination what was the obstruction, but could not, as there was no room. As a last resource I cut the foal in two at the loins and pushed the remains back into the womb. I found the hind legs were flexed under the belly and curved over each other so that the more we pulled the tighter we wedged the foal. Applying a rope to one leg now rendered delivery easy, and the mare did well.

Case 2.—*Subject*, cow.

A message came from a practical farmer to come and remove a deformed calf as there were four feet presented, all together. Found a big shorthorn cow, two feet protruding from vulva, soles pointing upwards, so thought it was a breech presentation. Just inside vulva were two more feet, soles also pointing upwards. An extension of the examination revealed two knees, and I believed it to be another calf coming upside down. Decided to remove breech presentation first, and applied pulleys to hind legs. Calf came comparatively easily, and what I thought to be the fore legs of another calf were the legs of the same calf doubled underneath him.

I have considerable practice in parturition, but both these cases puzzled me considerably.

Mr. Parker also sends us evidence concerning the value of two much-discussed processes in the following notes:—

Tuberculin Testing.—I tested with tuberculin, six times in three years, a pedigree Friesian cow which never gave the slightest reaction. She looked the picture of health, fed and milked well, and was never ill. She was fattened and sent to a public abattoir, where she was condemned as tuberculous.

Contagious abortion.—A client bought fifty heifers at a Fair and, as he had been troubled with abortion, had them injected. Twenty of them happened to turn out in-calf and had been bulled before they were injected—yet they all carried their calves to full term.

Fatal Mildew Poisoning in Lambs.

By W. Brown, M.R.C.V.S. (Wiveliscombe).

Locality.—Hill-country farm in West Somerset.

Subjects.—Flock of 60 lambs about six months old.

History.—Lambs doing well up to time of seizure, being in good condition and healthy.

Food.—Fed on pastures with frequent change and, just before seizure, put into rape.

Symptoms.—Staggering, foaming at the mouth, temperatures 105° to 106·5°. This was an uniform height of temperature for all the lambs. Death in a few hours.

Causation.—Careful examination of the pastures was made, but nothing discovered until the field of rape was reached. This rape was much scorched by the long-continued drought, and had evidently suffered considerably. Many of the plants were decayed and blighted, mildew being present on the leaves. The lambs had evidently eaten eagerly of this decaying herbage.

Post-mortem.—Rumen and reticulum normal; slight derangement of the omasum, and a well-marked inflammatory condition of the abomasum, with fluid ingesta; intestines intensely inflamed and the contents fluid. Heart showed well-marked pericarditis with slight endocarditis. A large quantity of rape was found in the rumen. All the other organs presented a normal appearance.

Treatment.—A large cathartic dose of cattle salts was administered as soon as practicable. This dose acted very rapidly, and a decided improvement in the lambs was noticed in a few hours. Those badly affected lost the staggering gait and ceased foaming at the mouth, and only one showed adverse symptoms the next day, ultimately making a good recovery.

As some of the lambs were off their legs, the rapidity and completeness of their recovery was remarkable in view of the post-mortem lesions.

Eversion of the Uterus in the Mare.

By W. R. Davis, M.R.C.V.S. (Enfield).

Subject.—In May last I was called to a half-bred mare that had foaled two days previously, had not cleaned, and had now everted the womb. The patient was lying in a state of semi-collapse, but occasionally showing colic, in a loose box, the womb (one horn as is usual in the mare) protruding as a rugged dark purple mass and from it hanging the greater part of the cleaning.

Treatment.—The mare was given half-a-pint of whiskey, and then the womb was well washed with lysol in warm water and soap, and the cleaning removed. Having now got the patient up, a sheet, folded in two and held by a couple of men, was put under the womb and raised as high as possible. Covering the organ with another piece of sheeting, I squeezed it during quarter of an hour or twenty minutes, and succeeded in getting rid of much of the œdema, and rendering the mass more pliable and smaller. I now soaked the viscus with linseed oil and commenced very carefully to return the parts next the vulva. It certainly looked a pretty hopeless task—the mass was so large and its texture so friable—however, after half-an-hour's patient manipulation, reduction was effected. A pint of linseed oil was injected and all kinks smoothed out and a tape suture put across the vulva. The mare stood all the time and did not strain very violently, and as soon as the operation was over she commenced to eat a little bran and chaff. I saw the patient next day, removed the stitch, and injected more oil into the uterus. The mare made an excellent recovery and was at work in a week. I think that injections of oil are preferable to those of watery solutions in uterine cases in mares.

Notes and News.

Annual General Meeting, 1922.

The Annual General Meeting for 1922 is to be held at Bath. The dates will be published later.

Revive the Order.

At the final sitting of the World Conference on Tuberculosis, Sir Humphry Rolleston said that the obvious method of preventing tuberculosis by isolating all the carriers of tubercle bacilli would be effective only if adopted in the stage before tubercle bacilli were discharged from the individual. If all such cases of latent infection could be detected by means of Von Pirquet's test they would have amounted to much more than 80 per cent. of the world's inhabitants, to from 90 to 95 per cent. of the urban population, and an enormous number of cattle. It was clearly impossible to eliminate the tubercle bacillus from the world. The speedy eradication of bovine tuberculosis was said to be impossible, as it would involve the slaughter of all cattle reacting to tuberculin—one-third to one-half, or about a million of all the milking cattle in this country. But it was essential with as little delay as possible to revive the Tuberculosis Order of 1912 and 1913, the suspension of which on the outbreak of war allowed the unrestricted distribution of milk from cows with tuberculosis of the udder or advanced disease.

The House and Cruelty to Animals.

Mr. Shortt, replying in the Commons to Mr. Raper, who asked whether the right hon. gentleman's attention had been drawn to a recent case where a Captain Vere Falkner, of Northchapel, Petworth, was found guilty of wiring some paraffin waste to the tail of a pony and setting fire to it, with the result that the pony had to be destroyed; and whether he would consider the introduction of legislation to increase the penalty for this type of offence, said :—I have seen a newspaper report of the case. As I said in my reply to my hon. friend on April 6th, cruelty to an animal can be punished by imprisonment up to three months. The sentence in this case was one month's imprisonment, the magistrates not thinking it necessary to inflict the maximum penalty. I could not propose legislation fixing a minimum penalty and depriving the magistrates of the discretion now given them.

Sanger and the Cruelty Charges.

Giving evidence before the select committee of enquiry into allegations of cruelty in the training of performing animals, Mr. James Sanger, the well-known circus proprietor and trainer, said the coke fires and red-hot irons used in shows in connection with the "bouncing" lions were part of the show. The lions were pretended to be fierce, but were in reality very tame. The fire was to keep up the impression of fierceness. The great point about animal training was to establish authority over the animals. Monkeys and elephants knew the men they could "bluff" and the men they could not "bluff." It would be useless to strike an elephant with a crowbar or a hammer, as it would not feel it. In play among themselves elephants frequently struck each other with their tusks. The only thing which would have any effect on an elephant would be a light thin ash plant. The surface of the skin was sensitive, and an elephant could feel flies on it. He would move for a light cane, whereas a crowbar or any of the other weapons which witnesses had stated were used would be useless.

Mr. Sanger said that trainers were born and not made. He had several times dismissed from his service men who showed no aptitude for animal training. Lions had long memories, and if a trainer ill-treated one of them in the way it had been alleged, the animal would "get even" with him, if he did not see him again for years.

Animal Experimentation Returns.

A return of experiments on living animals during 1920, which has just been issued by the Home Office (182), shows that the total was 70,367, being 7,490 more than in 1919. Of these, 6,993 were performed with and 63,374 without anæsthetics. In no case, it is explained, had a certificate dispensing entirely with the use of anæsthetics been allowed for an operative proceeding more severe than subcutaneous venesection.

Of the 6,993 experiments with anæsthetics, 3,058 were simple inoculations into the skin of guinea pigs, and in 2,275 others the animal had to be kept under an anæsthetic during the whole experiment.

The 63,374 experiments without anæsthetics were mostly inoculations, but some were feeding experiments, or the administration of various substances by the mouth or by inhalation, or the abstraction of blood by puncture or simple venesection. The operative procedures were only such as were attended by no considerable, if appreciable, pain. The certificate was, in fact, not required to cover these proceedings, but to allow of the subsequent course of the experiment. The experiment lasted during the whole time from the administration of the drug, or injection, until the animal recovered from the effects, if any, or died, or was killed, a period possibly extending over several days, or even weeks.

In cases of prolonged action of an injected substance, even when ending fatally, it is observed, the animal is generally apparently well, and takes its food as usual, until a short time before death. The state of illness may last only a very few hours, and in some cases it is not observed at all. In a very large number of the experiments the results are negative, and the animals suffer no inconvenience whatever from the inoculation.

The returns show that during 1920, 6,136 experiments were performed by 11 licenses in the course of cancer investigations. Of these, 675 were with anæsthetics and 5,461 without. The latter were almost entirely inoculations into mice or exposure of animals to radiations.

Veterinary Inspection Tribute.

Sir A. Griffith-Boscawen, replying in the Commons to Sir J. Butcher (York, C.U.) and Sir E. Wild (Upton, C.U.), said:—I gather from the report of the conference which took place in London on July 19th between representatives of the Ministry and of the various foreign Governments concerned that no objection is likely to be raised in Holland or Belgium to the importation of horsemeat which is inspected before shipment by veterinary officers nominated by the Ministry; and I am now considering the administrative arrangements which may be necessary to encourage the conversion of the traffic in live animals which are intended for food into a trade in dead meat. The standard of inspection for horses intended for export is now very high, and I am satisfied that horses which are now being exported from this country may, in the strictest sense, be regarded as working horses. I think it will be found that any cruelty such as may have attached to this trade before inspection was so thorough as it is to-day has ceased. If not, any case brought to my notice will be dealt with promptly.

Origin of the term "Nagana."

Mr. R. H. Harris, the entomological officer assigned to study tsetse fly in Zululand, has contributed to the South African *Journal of the Dept. of Agriculture*, the following interesting note on the word "Nagana," by which the disease spread by the testse fly is commonly known. The word, he says is apparently a corruption of the Zulu word "ulu-Nakane," which, according to the dictionary, means "tsetse fly disease in cattle or a man pestering another for debt; a persistent continual doing of anything."

"On inquiry amongst the natives," Mr. Harris goes on to state, "as to the 'Nakane,' I was unable to find any one who knew the disease by this name. Many previous workers have noted that there are apparently two diseases caused by the fly, so-called Nakane and another called 'Munca.' The latter word signifies the sucking out of anything, as an orange, and the noun 'um-Munca' is given in the dictionary as a wasting disease akin to 'Nakane.' On inquiry further amongst the natives as to um-Munca they at once described it as the disease known to Europeans as Nagana. Seeing that the later stages of the fly disease give the animal the appearance of having been sucked out, I have little doubt that the native um-Munca would be the word in their mind which best described it. Sir David Bruce gives the meaning of 'Nakane' as *depression*. I do not know on what authority."

The Board of Directors of the Veterinary Insurance Company Ltd., has been augmented by Mr. Thomas McRow (late secretary of the R.A.S.E.), and Mr. T. H. L. Duckworth, M.R.C.V.S., one of the best-known Midland County practitioners.

Dublin Class Prizes.

Class A.		
Bursary	... ...	F. Crowne, B.A.
Junior Anatomy...	Silver medal,	F. Crowne, B.A.
	Bronze medal,	S. G. Stewart.
Biology	Silver medal,	F. Crowne, B.A.
	Bronze medal,	P. D. Baylis.
Chemistry and Physics.	Silver medal,	F. Crowne, B.A.
	Bronze medal,	S. G. Stewart.
Practical Chemistry	Bronze medal,	F. Crowne, B.A.
Class B.		
Senior Anatomy...	Silver medal,	J. J. Shankey.
	Bronze medal,	H. G. Lamont.
Physiology ...	Silver medal,	M. Crawford.
	Bronze medal,	M. M. Neser.
Stable Management	Silver medal,	R. M. Campbell.
	Bronze medal,	T. H. Robinson.
Histology ...	Bronze medal,	G. Rocker.

Class C.

Pathology and Bacteriology ...	Silver medal, J. P. Camac.
	Bronze medal, S. L. Black.
Materia Medica ...	Silver medal, J. P. Camac.
	Bronze medal, S. L. Black.
Hygiene and Dietetics.	Silver medal, J. J. E. Kenny.
	Bronze medal, S. L. Black.
Practical Pathology and Bacteriology	Mettam Memorial Medal, R. W. Sainsbury.

Class D.

Surgery	Silver medal, J. M. Murphy.
	Bronze medal, J. E. McIlwaine.
Medicine	Silver medal, W. O'Callaghan.
	Bronze medal, J. E. McIlwaine.
Clinique	Silver medal, J. M. Murphy.
Obstetrics ...	Bronze medal, J. M. Murphy, D. D. Morton } Tied
Meat Inspection	Bronze medal, M. W. Sheppard.

Medal presented by the Veterinary Medical Association of Ireland, won by M. W. Sheppard.

It is reported that while fishing off the Aleutian Islands (North America) native fishermen came across some arctic sea-cows. These animals were thought to be extinct, none having been seen for about forty years. The sea-cow, which is a large animal measuring up to 40 feet long, has a head and neck like an ox, but hind quarters like a fish. There are udders between the forelegs and plates instead of teeth. They pasture in the sea kelp at low tide. Their flesh is said to be very palatable and resembles beef.

At the recent meeting of the National Poultry Parliament reference was made to the large quantities of unsuitable material which are sold to the poultry keeper as food-stuffs. In order to prevent adulteration and misrepresentation, the Council was instructed to request the Ministry of Agriculture to indicate for the benefit of the poultry industry the composition of Sussex ground oats, clover meal, fish meal and meat meal, and to issue an Order prohibiting the sale as such of any material which does not comply with the requirements as indicated or may be indicated by the Ministry.

Triplet Calves.

A cow belonging to Mr. Alfred Hill, Yew Tree Farm, Godley, Hyde, Cheshire, has given birth to three calves. Twins are exceptional, but it is extremely rare for a cow to have triplets.

They are well-developed and healthy calves, two white and one black. Curiously enough, the white ones each weigh 62lb. and the black one 54lb., making a total of 178lb. The average weight of a single calf is about 62lb. The mother is a big Shropshire-bred shorthorn.

Meat Inspectorship Examination.

At an examination for Inspectors of Meat and other Foods, held at Birmingham on July 22nd and 23rd, 1921, twenty-six candidates presented themselves. The following ten candidates were granted certificates:—John William Cattliff (Sheffield), John Davis Chance (West Bromwich), John Henry Davies (Wolverhampton), Osborne J. Evans (New Tredegar), Charles Kenneth Teague Hale (Chesterfield), Douglas Hurst (Stoke-on-Trent), Alice M. Hugh Musgrave (Dowlais), Brinley David Owens (Swansea), George Herbert Shaw (West Bromwich), and John Willie Thurman (Wolverhampton).

E. White Wallis,
Deputy Registrar.

The Practitioner on Joint-Ill.

A *Glasgow Herald* veterinary correspondent writes:—It may interest agriculturists who are not specially well up in stock surgery and medicine, and Clydesdale breeders in particular, to know that joint-ill in foals has been closely studied in the living animals. Post-mortem examinations have, of course, been made on the dead animals for a considerable time. It is very desirable that the opinions of practical observers should be obtained regarding this malady, in order that many valuable foals may be saved to their breeders. It is also desirable that any useful looking hints or lines of inquiry should be followed in order to save both time and money, as this disease is year by year claiming as its victims some of the best-bred foals in this country. With this aim in view, I place before you my own opinion, founded on lengthened experience of the disease and its treatment. My opinion is that this disease is of the nature of rheumatism, which foals may contract before birth. Foals may or may not develop this disease till after birth. Much depends on their surroundings and on climatic conditions, cold and wet favouring its development. The disease in foals may be acquired through the stallion or through the mare, or may be traceable to both the sire and dam conjointly, the worse cases occurring when both have a rheumatic tendency.

In my opinion the sire or dam must have a rheumatic diathesis or have a rheumatic taint in the blood before it can transmit the evil to the progeny. That, I think, is the keynote to the whole complaint. Remove or alter this taint in either sire or dam, and breeders will free themselves from joint-ill. These are the lines all work on joint-ill should take. Prevention, in this as in many other cases, is better than cure. Affected foals are very difficult to treat, as the weakness is born in them; but with proper treatment, care, and attention they may live on and throw it partially or completely off. The treatment of the sire, as well as the dam, has never been mentioned so far as I know, but this should be carried out where the sire is a very valuable one, and before either the sire or dam is discarded for breeding purposes. My opinion is that serums, or vaccines, should be applied to pregnant mares twice (once at seven to eight months gone in foal, and once between nine to ten months gone in foal). To foals, serums and vaccines should be applied every few days according to the nature and age of the foals and nature or severity of each case as it arises. At present one injection to pregnant mares is adopted, but the double injection has been found to be more efficacious in preventing the development of the disease.

Bull Liability.

"Beware of the Bull!" The legend is not unfamiliar, nevertheless it would appear that legally the bull's owner is not under an obligation to display such a notice. The answers to a query on the subject are notable. The English case

referred to was not a normal case. The owner of the vicious horse chose to graze him in a field across which he allowed a public right of way. Strictly it was not a "right" of way: rather was it what one sees so often in the Lake district—a way "on sufferance." But having granted leave to the public to use that way, and being fully conscious that they availed themselves of his clemency, the owner of the field incurred a grave responsibility when he put a vicious animal to graze in that field. The case of a wilful trespasser is surely not on all fours. Some bulls are only vicious when they see strangers, and strangers who wander at large over a farmer's pastures are trespassers of a bad type. If their presence, where they have no right to be, excites a bull, and he gives chase, the blame is their own. At the same time, a vicious animal should never be grazed where there is risk of him breaking out and trespassing on a highway. Under such circumstances the owner must be liable. He should take no risks.

Present Position of Sheep Breeding.

There is no necessity to reiterate the value which sheep are generally recognised to exert on arable land. It is sufficient to know that a great many farmers are making increased uses of artificial fertilisers on their arable land, and in most instances find these to give them equally satisfactory returns without having to invest considerable capital in a regular breeding flock, with the attendant expenses associated with the keeping of such. The present cost of labour has also contributed in no small degree to make the Down sheep-breeding unprofitable, while in some districts the extension of arable dairy farming is causing the utilisation of green crops for cattle—and even pigs—which at one time were consumed by the sheep.

However, if the decline in Down breeding flocks is so marked, on the other hand it is pleasing to note that another type of sheep farming is gaining in popularity. And that is the practice of keeping a flock of grass-fed ewes which in turn are mated with Down rams, and lamb down on grass, and the progeny are either fattened off their dams' or folded off on turnips during the winter.

This system, according to those who have tried it, is one which is proving very profitable, and to a great extent the labour problem is solved. The conditions are slightly different, however, from those demanded by ordinary Down flocks, yet there are abundant areas of land in the Down districts which are capable of being developed into first-class grass land. Professor Somerville, at Poverty Bottom, showed what could be done in this direction within a very short space of time, and the sheep as an improver of grass land is a valuable agent, especially if grazed along with cattle.

The type of sheep which seem to fit in best for this kind of sheep farming are cross-breds of North country origin, and the importation of breeding ewes from the North is becoming much more common. Some of the best are Masham or grey-face ewes (Wensleydale-black-faced Mountain cross) half-breds (Border Leicester-Cheviot cross) and males (Border Leicester-black-faced Mountain cross). In addition to these, cross-breds from Wales and Devon and Cornwall are popular, although usually the north country sheep are found to be in greater demand. These ewes make splendid mothers, and in addition are very prolific and hardy. Where the object is to market the progeny early, the Hampshire Down ram is chiefly used, the lambs of this cross being remarkably quick growers, and attaining good size. Other Down crosses are tried with quite a good amount of success.

It will, therefore, be recognised that for those farms which possess pasture land capable of development, sheep-breeding is being directed into different channels which are capable of yielding a better return than the old-established practices.—Henry G. Robinson, *in the Live Stock Journal.*

Vitamine Condiment.

Veritable mountains of fruit and vegetables which go to waste in this country, says the New York correspondent of the *Daily Chronicle*, may be utilised to banish malnutrition, if Dr. Barringer Cox's latest discovery does all that he claims for it.

Dr. Cox has found it possible to isolate the vitamic cells, absolutely essential to proper nutrition, in the form of a liquid and of a crystal. One spoonful added to a plateful of food, possibly as a condiment, would give all the vitamines needed for a meal, he says.

Among other things Dr. Cox is the inventor of the dry battery. He has also invented a device by which fruits and vegetables, without the use of ice or chemicals, can, by suspended animation, be kept fresh indefinitely and at small expense.

There need be no limit, he says, to the size or capacity of the container, which he calls a conservator. A beet kept in it for four months was taken out as fresh, according to Dr. Arthur M. Mass, an analytical chemist, of Los Angeles, as if it had been dug out of the ground the same day.

Sheep Scab Infection.

The considerable prevalence of sheep scab is one of the unfortunate features of the returns of animal diseases in this country, and the question of danger to clean stock coming in contact with inclosures that may have been occupied by infected sheep is referred to in an interesting report in a copy of the *Journal of the Department of Agriculture* of the South African Union, which has just come to hand. A series of experiments was conducted by Mr. H. H. Curson, the veterinary research officer in charge of the laboratory at Grahamstown,

with a view to establishing the longest period that a sheep kraal would remain infected with scab. Mr. Curson found, as the result of repeated experiments, that if scabby sheep were taken out of a kraal, and the kraal left empty for sixteen days, and if clean sheep were then put into the kraal the latter would remain free of the scab. In other words, the kraal was not able to retain the infection for a period of sixteen days. The interesting feature of those experiments was that they were applied not only to open sheep kraals, but also to a closed shed and a stable, and the result was the same. The shed, 9ft. by 10ft. by 12ft., was occupied by eight scabby sheep for 18 days, and then left empty for 16 days. Two clean sheep were then put into it for 38 days, and remained free from infection. Again, two scabby sheep were placed in a closed brick stable measuring 6ft. by 12ft. by 12ft. for 84 days. After removal of the two scabby sheep the stable was left empty for 16 days and was then occupied by two clean sheep for 47 days. At the end of that period these two sheep were found to be free of scab.

Economical Stock Feeding.

Considerable progress in the economical feeding of cattle and sheep has been made within the past few years. The introduction of the modern silo and the growth of leguminous crops on the arable land will some day revolutionise the raising and fattening of cattle in Britain. Far too much is spent at present on imported feeding-stuffs, though, without a big change of method, these cannot be done without. That is one of the reasons why the economy of importing both store cattle and feeding-stuffs, rather than importing the ready-made beef, seems so doubtful. Even now we can consume all the cattle foods we grow as well as those we import, and it will only be when we can raise more cattle by cheaper methods, and finish them off at an earlier age, that we shall largely increase our home-produced meat supplies. This is a very important point, for, whatever may be said of the inferiority of the quality of the younger meat, compared with that of more mature animals, the more quickly the animals can be turned into meat the more each farmer can produce in a given time.—*Live Stock Journal.*

Kangaroo's Natural "Performance."

The only "performances" of wild animals pleasing to reflective persons, says *The Times*, are those based on natural habits and instincts. As kangaroos support themselves on their hind legs and tail, which form a tripod, the forelegs are left free. Nothing resembling the grasping hand of monkeys has been formed, but the free limbs are used in many ways suggestive of human action. In courtship the males caress the females with their forepaws, and in combat, playful or serious, they stand up to each other, going through the movements of boxing and wrestling. A very little encouragement, such as has been employed with a large red male in the kangaroo sheds, turns this natural trick into a good imitation of a boxing match. The animal stands up to the keeper, wrestles with him, aims and parries blows, feints, and dodges with his head. He has even some of the illegitimate tricks, such as the *savate*, and with his powerful hind limb could strike a most serious blow. But a little scolding stops this tendency, with the result that bouts of a few minutes, obviously enjoyed by the animal and the keeper, and very interesting to visitors privileged to see them, are gone through.

German Savants on Tuberculosis.

The question of immunity was discussed recently at the German tuberculosis congress, held at Bad Elster by Professor Isaac von Wassermann and by Dr. Neufeld, rector of the Robert Koch Institute. Both announced that they have come to the conclusion that there is no immunity against tuberculosis in the sense in which it is understood in regard to smallpox, measles, and some other infectious complaints. They stated that in their conclusions :—

We must entirely abandon the hope of protection or precaution against tuberculosis by tuberculin or by injecting tuberculosis bacilli. In all cases of immunity such as diphtheria and smallpox we have only done what nature does. Against these nature created prophylactics, but did not do so in the case of tuberculosis. Therefore it is no good searching for new tuberculin. On the other hand, we might very well hope that some chemical substance would be discovered that would attack the tuberculosis bacilli.—*Times.*

Slump in Shire Horses.

A general feeling of depression seems to have fallen on horse breeders for which there is more than one cause. The high prices prevailing during the war have naturally given way and would have done so under any circumstances. The war made less difference to the value of first-class animals than to inferior ones, which increased by 53 per cent., while the first-class only appreciated in a smaller degree. Now the fall has come, the second and third-class animals feel it most. A far more serious cause of depression is the coming of the tractor, which some people think may displace the horse altogether. This is improbable, but it is likely enough that only the best ones will survive. The Shire Horse Society now numbers 6,300 members, and has had a flourishing career, has always been prominent at all agricultural shows, and its extinction would be sad indeed. Anyhow, it will take time. For farm work, especially on heavy land, horses will long hold their own. Indeed, tractors can hardly compete with them, while for town haulage for short distances they are much preferred. Let the farmers breed only the very best type of animal and they will long continue to be an important factor as a rent-paying item.—*Farmers' Gazette.*

Barium a good Rat Poison.

A study of barium carbonate as a rat poison, made by the United States Department of Agriculture, indicates that a 20 per cent. mixture with food makes a satisfactory bait. With this percentage a rat ordinarily needs to eat only one-third or three-eighths of a meal of average size to get a fatal dose. It was found that with this dose many of the rats poisoned died within 24 hours, though an occasional rat was found which survived an even larger amount, thus indicating that 100 per cent. mortality is not to be expected in any case.

A summary of results of experiments conducted by various persons with a view of determining the deadliness of barium to different animals shows the fallacy of the assumption that barium is poisonous only to rats. It is pointed out that the fatal dose of barium per pound tends to decrease relatively as the size of the animal increases, and that a bait calculated to be fatal to rats may be assumed to be more or less dangerous to small domestic animals also.

Production of Veterinary Biological Products in U.S.A.

In the supervision by the Bureau of Animal Industry of the commercial manufacture of veterinary biological products during the last fiscal year 93 firms were licensed to prepare 177 products of 69 general classes. Fifty-eight of the licensed establishments produced only anti-swine fever serum and swine fever virus. The output of the latter products reached very large proportions. The net production, after deducting the quantities destroyed as unfit for use, was as follows: swine fever serum, 520,016,641 c.c.; simultaneous virus, 21,736,139 c.c.; hyperimmunizing virus, 113,878,741 c.c.—*Journal American Veterinary Medical Association.*

Coexistence of Udder Tuberculosis in Generalized Cases in Swiss Cattle.

During a five-year period from 1915 to 1919, out of a total of 14,362 cows slaughtered in the municipal abattoir in Bern, 357 animals were found affected with generalized tuberculosis. Of the latter 111, or 31·09 per cent., showed udder tuberculosis. The percentage of udder infection of all the cows slaughtered was 0·77. This is about three times higher than OSTERTAG reports for udder tuberculosis in Germany (0·1 to 0·3 per cent. of all cows slaughtered).

[G. FLUCKIGER, *Schweizer Archiv. f. Tierheilk.*, May, 1920, p. 204.] (*Journal American Veterinary Medical Association.*)

Rumour has it that Denmark will endeavour to make this country (U.S.A.) her main butter market, rather than Great Britain, as in the past. . . . Denmark needs coal from this country, and the "butter money" will come handy in settling the bill.—*National Stockman and Farmer.*

They Want to Know.

An important function of the U.S.A. Bureau of Animal Industry is to give information and advice to stock raisers. Some requests, however, are hard to answer satisfactorily. This one, for instance:—

"Please give me a receipt that will fatten a poor mule or horse, something that will make it look fat or puffed so that they will do to trade on. If you will send me this receipt, I will pay for it."

The best the Bureau could do was to advise plenty of feed and good care, and no charge was made for this "receipt."

More worthy of attention was the following from a farmer in the Southwest:—

"Have you anything on hydrofobi in catle there has bin severl died here they get mad and fite any thing in site and sloberd at mouth. Can one cow anokelet an other."—*Journal American Veterinary Medical Association.*

"The accredited-herd plan, by which owners of tuberculosis free herds receive State and Federal recognition, has met the approbation of breeders of cattle all over the United States."—*Iowa Homestead, U.S.A.*

UNKIND.

Recently-qualified and somewhat haughty graduate: "Oh, yes, my practice has increased 100 per cent. since Christmas."

Candid acquaintance: "Somebody brought in another dog, then?"

Correspondence.

Letters to the Editors should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue

Higher Education, Etc.

Sirs,—I too, like Mr. Henry G. Sampson, *vide* his recent letter to the *Record*, cannot understand the attitude of Sir John McFadyean in his endeavour to thwart professional progress by keeping the standard of education at its present-day level, nor can I explain why, after the rebuff he received from the Council of the R.C., he did not resign his seat on that body. He did so from the "Central," and more recently from the "National," apparently under less provocation. I come in touch with many veterinary surgeons during the year, and I can definitely say the Principal of the London Veterinary College is losing caste among his professional brethren. The thrusting of his tuberculin upon the Friesian Society, his anti-joint-ill serum upon the Shire Horse Society, and, lastly, the monopoly he has succeeded in obtaining for the supply of mallein to the collieries, does not assist in enhancing his popularity. And why should it? He is doing that which if a private practitioner did on a smaller scale would be called "touting," and the profession should rise to a man and resent such practices.

Sir John is not a philanthropist, and he is not making these rich societies a present of his products without the hope of a return which will, in time, make his laboratory hum. He supplied mallein to the Army during the war at, I think, 4d. a dose, a proportion of which went into his own pocket, in fact, until that excellent "Lab." at Aldershot got into its stride, when it made its own mallein at 1½d. a dose. Further comment is unnecessary.—Yours, etc., "PROGRESS."

Calf Weight at Birth.

Sirs,—In your issue of June 4th Mr. Baxter mentions a calf which at birth weighed a little over 125lbs. I have a cow calf—Shorthorn, which when born turned the scale at 126lbs., and do not think that this is a record, as I have heard—but not seen—of one weighing 156lbs. and two 137lbs. each, and of twins which together weighed 200lbs. I may add that the dam of the 126lb. calf calved without assistance (it was her third calf), the calf being alive, and is still an exceptionally large one. I have another, a first cross Friesian Shorthorn, which appeared to be bigger, but was not weighed.—Yours faithfully, EDWARD J. FOWLER.

Mamelons Farm, Nazeing, Essex, July 25th, 1921.

The Headless I.C.V.D.

Sir,—"*Veritas*," in his letter in your issue of 30th July, tells us more in reference to the Headless I.C.V.D.; of the Department which he says is Imperial and yet not Imperial; again it is Provincial and yet not Provincial.

This to some might seem confusing—but not a bit. "*Veritas*" tells us this is a mere technicality; patent to all in India. This is most gratifying—How many hundred millions are there in India? How quick their perceptions must be!

"*Vis Unita Fortior,*" apparently endeavouring to grasp these problems and to furnish a statement of his own view, is accused of temerity for so doing. Who said "Pooh-Bah"?

It is no crime to be ill-acquainted with civil administration in India; at the worst he may be only in a less fortunate position than "*Veritas.*" And I see no reason why the I.C.V.D. should not be compared to other Departments; in fact, I almost think it might be healthy to do so. At all events these Departments seem clear cut and defined. "*Veritas*" gives us that by inference. It does us all good to stop and take a look round now and again.

Now what I want to ask is, Does "*Veritas*" carry the Government of India in his pocket? does he state their view about the fifth wheel to the coach? There are coaches that carry many more wheels than five, and they run very smoothly. The comparison does afford food for reflection. But who has suggested anywhere that an Inspector-General I.C.V.D. should act other than on constitutional lines? Is there something underlying this? Why the fear that he should? Is "*Veritas*" the arbiter of what his duties should be, and where he would be a fifth wheel? The Government of India would decide wherein his sphere of activities would most usefully lie. Is the general horizon of the I.C.V.D. so entirely satisfactory that with complete complacency it may be said, "all is well," "no change is called for"? Can added brains offer nothing more with the help of wider vision? Is the lack of this possible sphere to result in no drawbacks?

It is not impossible that if the Government of India were asked their opinion, it would be cast on the other scale—on the side of further possible progress, the exploitation of productive science.

I think if it were put to the Agricultural Adviser to the Government of India he would be in a position to more than assert that he is not a "mere adviser."

"*Vis Unita Fortior*" was little likely to think he had a bad case, or he would never have taken the trouble to put pen to paper; but "*Veritas*'" remarks in his concluding paragraph savour strangely of the boomerang.

I wonder what effect the exposition of the I.C.V.D. by "*Veritas*" is likely to have on the more thoughtful possible candidates for that service.—Yours faithfully,

"PRODUCTI."

Army Veterinary Service.

LONDON GAZETTE, WAR OFFICE—TERRITORIAL FORCE.

August 2nd.—Captain J. R. McCall resigns his commission (July 13th), and is granted rank of Major (substituted for that which appeared in *Gazette* July 12th). A. McLean to be Lt. (July 19th).

SPECIAL RESERVE OF OFFICERS.

Captain R. S. Little is appointed for duty with the Colonial Office (November 24th, 1920).

Diseases of Animals Acts, 1894 to 1914. Summary of Returns.

Period.	Rabies. Cases Confirmed. Dogs.	Rabies. Cases Confirmed. Other Animals.	Anthrax. Outbreaks confirmed.	Anthrax. Animals attacked.	Foot-and-Mouth Disease. Outbreaks confirmed.	Foot-and-Mouth Disease. Animals slaughtered as diseased or exposed to infection.	Glanders (including Farcy).* Outbreaks reported by the Local Authorities.	Glanders (including Farcy).* Animals attacked.	Parasitic Mange. Outbreaks reported by the Local Authorities.	Parasitic Mange. Animals attacked.	Sheep Scab. Outbreaks reported by the Local Authorities.	Swine Fever. Outbreaks confirmed.	Swine Fever. Swine slaughtered as diseased or exposed to infection
GT. BRITAIN.	No.	No.	No.	No.	No.	No.	No.	No	No.	No.	No.	No.	No.
Week ended 30th July, 1921 ...	...	...	10	21	...	...	...	...	26	33	1	19	13
Corresponding Week in 1920	...	...	5	6	2	5	...	...	21	29	...	33	18
Corresponding Week in 1919	6	...	7	8	1	27	1	1	60	89	...	57	35
Corresponding Week in 1918	...	...	4	6	...	...	...	..	55	87	1	28	13
Total for 31 weeks, 1921 ...	32	1	328	413	41	2888	7	12	1663	2589	400	807	268
Corresponding period in 1920	4	...	256	308	68	8342	10	17	2892	4893	289	1330	524
Corresponding period in 1919	128	3	122	160	20	1060	16	42	3818	7393	218	1353	599
Corresponding period in 1918	...	...	159	180	...	...	23	64	3284	6233	247	904	359

NOTE.—The figures for the current year are approximate only. *Excluding outbreaks in Army horses.

IRELAND.									Outbreaks			
Week ended 30th July, 1921...	...	...	...	...	...	...	...	...	3	5	7	42
Corresponding Week in 1920 ...	...	...	...	...	...	...	...	...	2	5	...	1
Corresponding Week in 1919 ...	...	...	...	...	...	...	...	...	5	6	...	3
Corresponding Week in 1918 ...	...	...	...	...	...	...	...	...	2	6	1	6
Total for 31 weeks, 1921	...	...	...	...	7	77	...	...	63	158	62	342
Corresponding period in 1920 ...	1	1	...	...	...	...	1	3	80	169	6	23
Corresponding period in 1919 ...	...	...	...	...	...	...	1	1	117	164	20	66
Corresponding period in 1918 ...	2	2	...	...	...	...	...	...	83	188	15	54

NOTE.—The figures for the current year are approximate only.

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